The W.A.N.D.

VOLUME 5 NUMBER 10 Westchester Atari News Digest OCTOBER 1987

from the EDITOR

by Rolly Herman

With this issue we return to the usual content of the W.A.N.D. I hope that the September issue provided the answers for those of us that were in a quandry regarding the desire to upgrade to an ST or an IBM clone. I would like to hear from anyone that decided to upgrade, or from those that had other good reasons not to upgrade.

I still have not received any contributions of articles for the W.A.N.D. from our own members, and I have not heard anyone regarding the STs. Therefore, the articles are 8 bit and all from other newsletters except for my own efforts.

LAGGING INTEREST

Attendance at our meetings continues to be very poor. It seems that interest in the Atari 8 bit machines has reached a very low level. I hear complaints that there is a lack of new software available. I find all this very confusing. There really is an abundance of software around via mail order and GEnie and Compuserve. Also there are tons of older programs at bargain prices that many of us have not even tried. Go to one of the computer faires or flea markets and see the bargains in hardware and software. Recently, at one of these faires, I bought a game in the original package complete with disk and documentation for $4.00. Yes, it had come out about two years ago, but it was new to me, and it was quite good. I also bought an excellent very quiet fan to cool my disk drives for $3.00. There are great buys of printer paper, ribbons, and accessories.<>

BIG GALA MEETING

>>NOV. 5, 1987<<

Our meetings are usually held on the first Thursday evening of each month. Therefore, the next meeting will be on Thurs Nov. 5, 1987 at 8:00 PM at 100 High Point Drive, Hartsdale, NY. in the recreation room on the ground floor. Tell the guard that you are attending the Atari meeting. When you come into building 100, press the Black button for the guard to open the inner door. For travelling directions call Henry Jacoby at 914-761-8664.

The executive committee has planned a terrific program for this meeting with the hope of getting a good turn out. We arranged for quality and quantity -- something for everybody. Here is the menu:

1. Robert Kovach will demonstrate his 1040 ST machine;
2. Ed DiMaria will teach us how to keep our plane from crashing in a demo of Flight Simulator II;
3. Henry Jacoby will show how to synchronize music on a cassette tape in the program recorder with graphics on the screen using the program Visualizer;
4. David Sorkin will demo Synfile Plus;
5. Rolly Herman will demo Blazing Paddles.
6. Dom Minnitte will demo a program, but it is to be a surprise.

How's that for a varied and interesting program? We will have a raffle as usual--this time it will be SNAPSHOT. And we will have blank disks for sale at bargain prices. So save the date and join the rest of us for a great evening!<>

[Editor's Note: The following article was retyped from STATUS, Sept. 1987 issue, with our thanks.]

CUSTOMIZING AUTORUN.SYS

by Ron Hamilton
Reprinted from ICCC, Mattoon Ill. Newsletter

Part of the "boot" process with the Atari DOS 2.0 and 2.5 is an attempt to locate, load, and execute a file named "AUTORUN.SYS". This can be any machine language object code file with an appended execution address.

DOS.SYS contains the specified file in ATASCII form at address $170C to $1719 (5900-5913). The default file is "D1:AUTORUN.SYS". You can see this with the following basic code:

```
     10 FOR I=5900 TO 5913:PRINT CHR$(PEEK(I));:NEXT I
     RUN
```

You can, of course, POKE anything that you like into these addresses, and add a custom touch to your DOS. It is even conceivable to make your DOS look for something like "D2:MYFILE.OBJ", which would make your DOS totally useless on a one drive system. My personal DOS is modified only slightly to look for "D1:A??????*.SYS". The wild cards take up the same memory space as the default, and will also accept the stock file name.

The utility is the fact that I can use any seven characters between the "A" and the ".SYS" to describe my file, and have some idea as to what the particular AUTORUN.SYS file does. I have "ARUNMENU.SYS" or "AGCOLON.SYS", ETC. You may have others that would make a directory listing much more informative. Here is how to do it.

```
10 DIM F$(14):F$="D1:A?????*.SYS"
20 FOR I=1 TO 14
30 POKE 5899+I,ASC(F$(I,I))
40 NEXT I
50 OPEN #1,8,0,"D:DOS.SYS"
60 END
```

The OPEN command in line 50 will write the DOS.SYS file to a disk in drive 1, so you do not have to go to DUP.SYS and manually write the DOS file with the option "H". Either way, you must write the new DOS.SYS to the disk before you can boot your system with it.

The END in line 60 forces BASIC to close all open IOCB's (Input/Output Control Blocks). Obviously, you can define F$, in line 10, to be whatever you like. But give some careful thought before you go POKEing around.<>

AUTORUN.SYS FOLLOW-UP

BY ROLLY HERMAN

NOTE: Please read the articles in the W.A.N.D. Jan. 19 and Mar. 1987 on AUTORUN.SYS.

The above program works. The AUTORUN can have any name that starts with "A", and ends with ".SYS". Any number of characters, from none, up to seven may be used between the "A" and the ".SYS".

The changes in DOS may be made by a simplification of the above program, or by using a sector editor, and going directly to sector 35 and making the necessary changes. The simplified program that I wrote is shown below:

```
10 DIM F$(10):F$="D1:A*.SYS"
20 FOR I=5 TO 9
30 POKE 5899+I,ASC(F$(I,I))
40 NEXT I
50 POKE 5909,155:REM CARRIAGE RETURN
60 OPEN #1,8,0,"D:DOS.SYS"
70 CLOSE #1:END
```

NOTE: The above programs will write the DOS.SYS files to the disk but NOT DUP.SYS. If you want to have DUP.SYS on the disk, use the option "H" first to write both DOS.SYS DUP.SYS on the disk. Then use one of the above B programs to rewrite the DOS.

For those of you that wish to make the changes to DOS with a sector editor, I have included the printout of sector 35 for the unmodified and the modified DOS. Bytes 22 through 27 are the ones that need to be changed. DOS will run any program whose filename appears from Byte 21 through byte 31. If other files were placed on the disk before DOS, then, obviously, the autorun will be in some other sector. If no deletions, rewrites, etc. were done on the disk, then the autorrun should be in the sector which is 35 more than the total number of sectors of the files which preceded DOS. Use the sector editor to find the correct sector. Have fun!!<>

SECTOR 35 PRINTOUTS
ON NEXT PAGE

HAPPY HALLOWEEN

UNMODIFIED SECTOR 35

EXAMINE BYTES 22 - 27

```
BYTE#              HEX                  ATASCI
  00   16 2C 9E 15 30 03 20 05 .,...0. .
   08  17 4C F7 15 C9 1D 90 06 .L..I...
  10   C9 34 2A 49 01 4A 60 6C I4*I.J..
  18   E2 02 6C E0 02 00 44 31 ......D1
>$20   3A 41 55 54 4F 52 55 4E :AUTORUN
>$28   2E 53 59 53 9B 4E 45 45 .SYS.NEE
>$30   44 20 4D 45 4D 2E 53 41 D MEM.SA
>$38   56 20 54 4F 20 4C 4F 41 V TO LOA
>$40   44 20 54 48 49 53 20 46 D THIS F
>$48   49 4C 45 2E 9B 44 38 3A ILE..D8:
>$50   4D 45 4D 2E 53 41 56 9B MEM.SAV.
>$58   20 92 19 A9 08 9D 4A 03  ..)..J.
>$60   20 79 17 30 38 A9 0B 9D  ..08)..
>$68   42 03 A9 7C 9D 44 03 A9 B.)..D.)
>$70   1D 9D 45 03 A9 8A 9D 48 ..E.)..H
>$78   03 A9 15 9D 49 00 24 7D .)..I.$.
SECTOR ==>35NEXT SEC==>36
FILE#==>0
```

MODIFIED SECTOR 35

```
  TE#              HEX                  ATASCI
  00   16 2C 9E 15 30 03 20 05 .,...0. .
>$08   17 4C F7 15 C9 1D 90 06 .L..I...
>$10   C9 34 2A 49 01 4A 60 6C I4*I.J..
>$18   E2 02 6C E0 02 00 44 31 ......D1
>$20   3A 41 2A 2E 53 59 53 9B :A*.SYS.
>$28   2E 53 59 53 9B 4E 45 45 .SYS.NEE
>$30   44 20 4D 45 4D 2E 53 41 D MEM.SA
>$38   56 20 54 4F 20 4C 4F 41 V TO LOA
>$40   44 20 54 48 49 53 20 46 D THIS F
>$48   49 4C 45 2E 9B 44 31 3A ILE..D1:
>$50   4D 45 4D 2E 53 41 56 9B MEM.SAV.
>$58   20 92 19 A9 08 9D 4A 03  ..)..J.
>$60   20 79 17 30 38 A9 0B 9D  ..08)..
>$68   42 03 A9 7C 9D 44 03 A9 B.)..D.)
>$70   1D 9D 45 03 A9 8A 9D 48 ..E.)..H
>$78   03 A9 15 9D 49 00 24 7D .)..I.$.
SECTOR ==>35NEXT SEC==>36
FILE#==>0
```

[Editor's Note: The following article was reprinted from JACG newsletter, Sept. 1987 issue, with our thanks.]

MASTERTRONICS
or
The Worst Games
for
The Cheapest Price

Paul J. Kowalski - JACG

Mastertronics, a British-based software company, has been in business for a few years. How they lasted this long, I can't imagine. They originally produced software for Commodore machines, and have since begun to double-pack some of their titles with both ATARI and Commodore versions.

The first thing that you would notice, if you had access to both computers (ATARI and Commodore), is that the ATARI translations are poor in quality and design. The second thing that you would notice, is that most of their games are awful to play. The only positive aspect of their games is that the graphics aren't that bad. In fact, the graphics are the onlt thing of merit. The sound quality is terrible, and some games, e.g. KICKSTART, have music on the Commodore version, but no music on the ATARI translation.

Of the Mastertronic games that I have seen and/or played, I offer you the following list of "bad" games:

1)KICKSTART is a split-screen motorcycle race over various terrains and obstacles. The graphics are well defined but the game, in general, is a waste of time. On the Commodore version it writes high scores to disk; the ATARI version doesn't.

2)ELEKTRAGLIDE is another motorcycle type racing game, but instead of seeing the vehicle, you have a forward view of the road. The object is to avoid obstacles and go from one time-warp tunnel to another. Again, the graphics are nice, but the game is impossible to win, and is monotonous and just plain boring.

3)ACTIONBIKER is another motorcycle entry. You have to find 40 items as you travel along a multiple scrolling screen. The graphics are not bad to look at, and the game-play is easy. The biggest problem is the monotony. Who wants to spend hours of play-time in finding 40 items? You just keep on going around and around in circles (even though a "cheat-sheet" is enclosed giving you a map of where the items are). The items have to be found in order. This game is just plain boring.

NINJA is the only game that I have found that is beautifully done. The graphics are excellant, the musical score is very well done, and the game-play is smooth and well defined. The object is to find six idols, while fighting evil "ninjas", "thugs", and "karatekas". You use Chinese Stars and small throwing daggers as weapons - along with your ninja sword and karate fighting moves. Though a very hard game to win, it is not monotonous, and

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SNAPSHOT

Review by Rolly Herman

Here is a "SLEEPER". This is an excellent screen dump program that has not gotten much attention. It was written by Richard Q. Fox and is sold by Joy Fox Productions. The latest version is 1.1. See the "ad" in this issue.

SNAPSHOT is very user friendly. It has five main features and is menu driven. Here are the things that it can do:

1. screen dump pictures in true shades of grey on Epson, Epson compatible, Star Micronics SG-10 or MX-10, and Prowriter/Nec printers. I tried it on my Epson MX-80 and it worked beautifully. It produced a picture printed vertically that is 6 5/8 X 8 3/4 inches with very little distortion. This is one of the largest pictures of any screen dump that I have used. Also it is quite fast. SNAPSHOT also claims to have the ability to print pictures in more than 50 colors on the Okimate 10 printer. I do not have an Okimate 10 printer, so I was not able to try out this feature.
2. graphics conversion. Loads and translates pictures from Computereyes, Fun with Art, Graphics Master, MicroIllustrator, Micropainter, and Versawriter.
3. can change colors on the screen using Joystick or touch tablet.
4. can print in single or double density on Epson or Epson compatible printers.
5. has a mini-DOS to get directory and delete files, etc.

There is a special menu for COMPUTEREYES which is excellent. It is possible to take a COMPUTEREYES picture, convert it to Koala pad form and add color with very nice results.

The manual consists of 11 pages of photocopied text, and five illustrations (pictures), but perfectly adequate. The program needs 48K and will run on Atari 400, 800, 600XL, 800XL, 1200XL, and 130XE machines.

Except for the Okimate color feature, I tried out everything else and it all worked very well. For the very nominal price of $22.50 ppd., I think this is one program that should be used by anyone that likes to work with and print out graphics. See the ad in this issue.<>

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is truly fun to play. If onlt Mastertronics would make all their games for the ATARI with this high quality!

To sum up, Mastertronic games are cheap. The highest price that I've found has been $10.00, and the lowest was $5.00. The price is guaranteed to sell a lot of copies, but if only one out of four games is any good...people will refuse to purchase their wares.

PRINTER LUBRICATION

[Editor's Note: The following article was reprinted from , April 1987 issue, with our thanks.]

RETRACTION

By David Locke

Last spring I wrote an article about the use of a standart typewritter ribbon in a dot matrix printer. In this article I said a typewritter ribbon had no lubricant for the printhead. Well, this is true. But, neither does a printer ribbon.

A repairman told me a printer must be periodicaly lubricated by the user. Either that or have the print head replaced once in a while. The maintenence requires lubrication in three places. One on the printhead, some on the printhead guide bar, and finally a little on the drive motor. A light oil such as sewing machine oil is at he recommended.

Remove the printhead gently, and turn it over. Some printers have a little pad under the dot wires on the bottom of the head. This pad should be dampened but not soaked. If your Printer doesn't have a pad just coat it lightly.

Then apply a liberal amount of oil to the Printhead guide bar. This is the silver colored bar which the printhead slides back and forth on during printing. Some printers have oil pads located just under the head which will hold oil up to the bar for lubrication.

Last put one drop of oil on the drive shaft of the step motor. Don't put any more on it.

These proceedures should help u get many extra miles off your printer. I suppose typewritter ribbons will be okay to use on the printer after all.

[Editor's Note: The following article was reprinted from the Mile High Atari Magazine, July 1987 issue, with our thanks.]

DISK COMPRESSION PROGRAMS

By Howard Ferguson

(From Portland Atari users)
(With our Thanks!)

If you use a modem for file transfers, you are probably aware of the most time consuming part of modeming: File Transfers. File transfers can be a very rewarding part of calling BBS's and large telecommunications networks such as Compuserve and GEnie, but they also eat up alot of time. This can cost you log-on time aand money if you are a frequent file downloader or uploader.

Inspired by this problem, there have been a lot of programs written with the idea of compacting files to make file transfers faster and easier. Two major types of compression programs have materialized to help us modem users out. The first type will compact an entire disk,including the DOS files and in some cases, the disk format. The second type will compress selected files on a disk,which can be 'decoded' on to any format.

DISK COMMUNICATOR and SCRUNCH are good examples of programs that will take an entire disk and compress it into one file. These programs will compact not only the files that you want to transfer, but also the DOS and the directory. This type of file is excellent for converting boot disks into aa transferable file. The ATARI Translator disks are good examples of the type of disk where this type of transfer is necessary. When you have downloaded the compacted file, you can then uncompress them and you will have an exact copy of the disk. All you have to do is boot and go.

ARC (Archiver) is an example of the type of program that will compress a group of selected files into a single file. This is good for a group of related files that must be placed on a disk with certain file names to run the desired program. Many game and utility programs require several support files and they should be named properly to run. The ARC program will uncompress these files on to a disk and give them their original names so that you don't have to worry about that problem. The other advantage of the ARC program is that you can uncompress these files on a disk with your favorite DOS and density. You also save space in the compressed file because it does not contain unnecessary information such as DOS and directory sectors. The disadvantage of ARC is that it will not compress Boot disks,so it will not work for disks such as the ATARI Translator.

With the help of test data received from GEnie and some data complied on my own, I have set up a chart of effectiveness of each of the major compaction uncompaction programs currently available. The chart below shows the results of the tests. The test consisted of compacting a group of files into a single file and then uncompressing it back to it's original state. With all of the programs except DISK COMMUNICATOR , the files were compacted from a floppy to a ramsdisk and then transfered back to the floppy. Disk Communicator would not work from the ramsdisk. The DOS used was Sparta Dos 3.2d for all tests because it's the fastest DOS available and provided easy ramsdisk capability's. The files compacted were one each: Basic Save program, Text, Object code, A Koala Picture, and an AMS II music file. Total byte count of the source files was 58704 bytes or 472 sectors.

PROGRAM	BYTE CHANGE	SECTOR CHANGE	MAKE TIME	RECOV TIME
SCRUNCH2	+1.8%	+0.6%	3.6	5.8
SHRINK2	+1.8%	+0.8%	4.1	3.3
SUPER BOOT	+6.0%	4.7%	2.4	2.5
SCOPY	+3.3%	2.1%	1.5	1.1
ARC	-24.7%	-25.4%	13.0	9.8
DISKCOM	+5.7%	+3.6%	4.0	2.8

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[Editor's Note: The following article was reprinted from KEEPING PACE, August 1987 issue, with our thanks.]

8-BIT HINTS

FLOPPY DISK RESURRECTION FOR 5-1/4" DISKS by "rootbeers"

reprinted from HACKS, June 1987

Well, sooner or later it's bound to happen. A disk of yours sits in the sunlight or a drink spills on it. What do you do? Well, this happened to me recently: a cup of tea spilled and destroyed my most recent work disk. Even so, in ten minutes' time I had the data safely back.

Here's what you do: Take the disk to a sink with a dustless but soft cloth and a felt tip marker (preferably waterproof). Wash your hands. Mark the top of the disk itself near the hub. Tear open the welds on the side farthest from the opening for the head, but be careful not to bend or scratch the disk. Do not use a knife unless you know that it is not magnetized! On the disk I had, the welds could be easily torn; perhaps a new razor blade would be the next safest thing to use. In the following steps, handle the disk by the edges and center only; if the area is polished don't touch it. Remove the disk itself from the sleeve and rinse it thoroughly under the tap. The water will easily run off the polished surface of the disk but will wet the unpolished areas. Use the cloth to dry the disk GENTLY; only the center and edges should be wet anyway. Allow the disk to air dry for a few minutes. Carefully insert the disk itself into the disk drive (without the sleeve) making sure the proper side is up. When you close the door of the disk drive, do so gently and be sure the disk is properly centered. Try to read the disk (do a directory of it, for instance). You should be able to read the disk at this point. Back it up IMMEDIATELY!

That's pretty much the technique; I hope you never have to use it, but if you do, I hope it works for you. If it doesn't though, you've learned a valuable lesson...right?

COMPRESSION continued

The results of this test are subjective in that the results differ from file to file and from disk to disk, but the programs selected were designed to provide a cross section of the major file types that are found on most BBS systems. The results do show however that as far as decreasing the size of the result file, ARC was the best by far. In fact the other programs actually increase the size of the result file. As far as speed in compacting and uncompacting SCOPY was the fastest. It's only marginally slower then a standard DOS copy. SCRUNCH2 seemed to provide the best results for boot disk recovery because of it's flexability in recreating the original DOS format.

Hopefully, this test will help you to decide (What decision? ed.) which program to use when uploading a file for others, and a little insight into the reasoning behind the format used by BBS SYsops when the put files up on the system.

[Editor's Note: The following article was reprinted from the JACG newsletter, August 1987 issue, with our thanks.]

PDG

FONT MASTER

Doug Van Hook - J.

With an overwhelming response to the disk library's program "DAISY DOTS", I thought we could review another utility program called "FONT MASTER." FONT MASTER will run on any 8-bit Atari with at least 48K.

Font Master was written in ACTION by Mike Fulton, of Cypress, California. In the documentation he does offer to provide continued support for the program and requests a small donation.

This superb program was designed to print out files, Atariwriter included, in any of 28 styles of font. It will also print all of the graphic characters. Another bonus is the ability to print SYNCALC Spreadsheets sideways using ANY of the available character sets. FONT MASTER provides 28 different Character Sets to choose from, and prints at either 960 dots per line, or at 1920 dots per line.

To use the program I simply (A)loaded it, (B)asked for a directory, (C)loaded the font called CURSIVE, and (D)printed the file called README.DOC. What could be easier than that ?

The author claimed that the fonts could be used with other programs, so I immediately loaded TYPESETTER and successfully loaded all but one of the charaecter sets to the screen. 27 out of 28 ain't bad!

One of the fonts, TRAIN.FNT, will replace selected characters in your text with tiny railroad vehicles. It is up to you to DECODE the missing characters by each word's use in the sentence. Dave Noyes should try printing a few articles this way.

Move over DAISY DOTS, I think we've got you now. Here are the menu selections for FONT MASTER;

1 - Print Text File
2 - Line Width (Characters per line)
3 - Load Character Set
4 - Change Character Set
5 - Top/Bottom Margins
S - Sideways Syncalc Print
D - Dots per line (Printer Resolution)
P - Change Printer (Epson FX/Gemini)
M - Disk Directory
Q - Quit Program

Font Master is available for $3.00 this month as our disk-of-the-month. To order by mail contact:

Bret Callegari
306 Division St. Floor 2
Boonton, NJ 07005

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[Editor's Note: The following article was reprinted from LOCO newsletter, Aug., 1987 issue, with our thanks.]

SAVE THAT DISK

by Jeff Dunaway

Reprinted from LACE Jan 1987 Newsletter

We all know by now that deleted files can be undeleted with the use of different utilities. But did you know that a disk with files that have had a blank disk copied to it can be saved?

Imagine a late night at the computer. You worked all evening on a new program and have just perfected it. The last thing you do is to back it up - for safety. Might as well duplicate the entire disk since there are several other ood programs. But the late hours ake their toll and you realize that you put the disks in the wrong drives. You quickly look at the directory and your heart sinks as it reads "707 FREE SECTORS".

If it hasn't been formatted or had anything written to it, you can save it. It takes some work and a good disk editing utility. A couple of months ago I wrote a review on Diskwiz II by Allen Macroware. I have found it to be a necessity in situations like the one above.

Copying a blank to your good disk results in 9 sectors being blanked out. One of these sectors shows which sectors are in use and the other 8 contain the disk directory. This needs to be reconstructed. The actual programs are left in tact - you just an't get to them since the disk irectory doesn't know where to find them.

Your first step is to map the disk. This will show which files are in which sectors. There are three bytes in every sector which contain this information. The map function will handle this for you. What you need to know is the number of the starting sector and how many sectors are in each file. This needs to be converted to hexadecimal (or character). Diskwiz has a provision for this.

In addition to the file name, the directory contains five bytes for each file to provide some necessary information. The first byte is a flag to tell what kind of file it is and the status. Normally it would contain $42 (the $ means hex). With Diskwiz, use the alter command to enter this as hex or use a B in the character mode. I found it easier to use hex for the first five bytes and character for the file name. However, it can be done either way.

The next two bytes show the quantity of sectors for that file. They are in low-byte, high-byte order. This means that the low byte is first. The next two bytes contain the number of the first sector of that file. Again, the low byte is shown first. Don't worry if the sectors of that file are not in sequential order, the three bytes we talked about earlier in each sector will take care of that.

The next eleven bytes are the filename with extender. Don't worry about the period between the name and extender. Just be sure to use eight places for the name and the last three for the extender. Eleven places are allocated whether they are used or not. This means that 16 bytes are reserved for each file. Eight files are handled by each sector in the directory. Since there are 8 directory sectors, this is the reason why 64 files maximum are allowed (remember - we're only talking single density here). Anyway, start with the first

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sector (sector 361) and keep going until you run out of files. Remember to write each sector back out to the disk when you have made all the changes. If you are lucky enough to know what files are on the disk and what order they are in, you can input that file name. Otherwise you might have to use some temporary names until you can load them and determine the actual name so that they can be renamed. The other item that needs to be taken care of is the VTOC sector (sector 360). This is the sector that keeps track of which sectors are in use and which are free. However, I generally cheat at this point and copy the files with DOS to another disk.

Well, it takes some work and does have some limitations (like it won't work on boot disks) but it will save a disk if the need arises. Also, the alter command can be used to change a file name if you happen to get two files with the same name on a disk (oh yes, it can happen).

[Editor's Note: The following article was reprinted from the JACG newsletter, September 1987 issue, with our thanks.]

Atariwriter Plus and the Panasonic KX-P1091
--> CUSTOM PRINTER DRIVER EDITOR <--

By George Sandford JACG

FUNCTION:	Dec Code:	Atari Key Code:
Initialize every line	= ------	
Line feed & C/R	= 155	
Underline OFF	= 27 45 0	Ctrl U or fuji
Underline ON	= 27 45 1	Ctrl U or fuji
Backspace	= 8	
Elongate OFF	= 27 87 0	SEL E
Elongate ON	= 27 87 1	SEL E
Bold OFF	= 27 70	SEL .
Bold ON	= 27 69	SEL .
Superscript ON	= 27 83 0	↑ up arrow
Superscript OFF	= 27 84	↓ down arrow
Down 1/2 line & C/R	= ------	
Return W/O Line feed	= 155	
Example of a Print Font setup:		
G1 PICA, 10 cpi, 80 cpl	= 27 80	
G2 ELITE, 12 cpi, 96 cpl	= 27 77	
G3 PROPORTIONAL	= 27 111	
G4 COMPRESSED, 15 cpi	= 27 15	
G5 Italic ON	= 27 52	
G6 Italic OFF	= 27 53	
G7 NLQ PICA	= 27 110	
G8 NLQ PICA EMPHASIZED	= 27 110; 27 69	
G9 NLQ PICA ITALIC	= 27 110; 27 52	

Ex: Start a line or segment with [ctrl G5] "Italic ON" and release the italic with [ctrl G6] "Italic OFF", if you then follow that with a [ctrl G1] the printing font will return to PICA.

Exception: Refer to your printer manual before using the simple [ctrl Gn] commands since not all printer options are released with another simple option change, but require a release code, such is the case with "Italic OFF"

It must also be noted that to custom combine two options such as the exampled G8 and G9. You must string the two commands together in the custom driver set-up, with a ";". The command should look like this: 27 rtn 110; rtn 27 rtn 69 rtn rtn. NOTE: you must recognize that this is but one example of the many combinations that can be saved in a driver file such as [D:PLUS1]. Lets create another file [D:PICA1] and this time use only PICA styles with all the variations that can be applied to PICA. And the let's do another file [D:ELITE1] using ELITE styles, etc.

Now, when you write something in Atariwriter Plus, load all your desired custom printer drivers on your "SAVE" disc. When its time to print your work, the program will ask for your printer driver, load it, set the global commands and print it.

[Editor's Note: The following article was reprinted from the JACG newsletter, September 1987 issue, with our thanks.]

LIGHT PEN ANYONE?

A Build It Yourself Light Pen

By Thomas Lawless, R-ATARI CLUB

For the 8-Bit Atari Hardware Enthusiast!

DISCLAIMER

The device described herein operates well if constructed as directed. Since I cannot control your abilities' or materials' selection process I assume no liability for the information contained in this article. Nonetheless, it works...

INTRODUCTION

Have you ever wanted a light pen, or were maybe just a little curious as to how one worked? Well, read on, as we cover some of the mysteries of this device and explore a few ways to use it.

The first element we will discuss is the light detecting device. Normally a 'photo transistor' is used. Light turns them on, just like a switch. In this case, it's actually the electron beam that 'writes' the picture to the screen (of the monitor/TV) that turns on our photo transistor. A 74LS132 integrated circuit (I.C.) is used for buffering the output so that we get 'clean' triggers (switching).

Next, how do we know where the electron beam is? Well ari had some forsight (did I say that?) in this department. y tied the trigger input to the GTIA and it stores the roximate location of the electron beam on the screen when the trigger input was activated. Ah! you say, that's all well and good, but how do I use this information? That's where it gets a little tricky. (You knew there had to be catch didn't you!)

Fortunately it's not really that hard for the basic 'stuff'. However, when you get up to writing pull down menu's. with icons ect., it could become a little difficult. You just 'PEEK' at locations 564 and 565. These are, respectively, the Light Pen *Horzontal*, and Light Pen *Vertical*, Shadow Registers. The 'real' registers are located at 54284 ($D40C) and 54285 ($D40D). Both sets of addresses contain the same values. However, I recommend using the lower RAM based values in your programs; no telling when Atari may change the others. These locations are updated 60 times per second. So they are pretty accurate.

Next we use good 'ole Joystick Port One to tell the computer to do something when we press our 'key'. We're going to use the 'forward' line to signal the computer and STICK0 location 632 ($278). You, of course, can use what you please in your own applications.

These light pen position memory locations do not hold actual screen positions. The values have to be interpreted to get the correct screen coodinates. For Horizontal, the left edge is 67. This value increases in increments of one, (one per color clock), until it reaches 227, then resets to zero, again increments by one until you reach the right edge; h should be 7. For the Vertical, the upper edge is 16, it increments by one, (one per two scan lines), for a maximum of 111 at the bottom.

Well that covers the software part and a little theory. Now to build one of these jewels.

CONSTRUCTION

First look over the parts list. Most everything is available at Radio Shack, or really just any hobby electronics shop, except the large marker pen body. That you'll have to scrounge up somewhere or destroy a good marker to get one.

Next is the cable for the light pen. I used a very flexible intercom cable that had 6 wires in it, and a 'D' type female 9 pin connector. I bent the side tabs back to make it fit into my 1200XL joystick port *(Ed., This shouldn't be necessary on other computer models)*. Then I just soldered the four wires in place as shown in the schematic.

I placed my 'key' switch (S1) about a foot from the joystick port, you can put your's where you want it. You could even put it inside the marker body if you can find one small enough and that you can press 'on' comfortably.

I cut the cable at the 12 inch mark and found the Ground and Forward line wires (#8 and #1 respectively). I soldered in switch S1, and reconnected all wires except the one for the Forward (it's done it's job).

Now we're up at the end of our rope, oops, I meant wire. Cut the following leads on the I.C. (just where the 'fat' part of the lead starts): 4, 5, 6, 8, 9, 10, 11, 12, and 13.

Cut a hole in the end cap of the marker tube, just big enough to fit through the cable you are using. Put the cable through the end cap.

Next we start soldering to the I.C.. Solder the +5vdc wire to pin 14. Solder the Trigger wire to pin 3. Solder a small jumper, (the 1 inch piece of wire), to pins 1 and 2.

Solder one end of the 2000 (2K) ohm resistor to pin 7 along with the Ground wire. Now connect the other end of the resistor to pin 1 or 2.

Here is where those two 6 inch pieces of #30 wire come in (i.e., 30 guage, wirewrap wire). Connect a wire from pin 1 or 2 of I.C. to the photo transistor, lead 1. Connect a wire from pin 14 of the I.C. to pin 3 of photo transistor. (I would put shrink tubing over these connections to prevent them from shorting). Cut lead 2 off of the photo transistor, if it has one (they vary from company to company).

Well that's all the tough stuff. Now you put the photo transistor into the marker tube, use a dull pencil and push it all the way down the tube until it comes up flush on the narrow end of the tube.

Next insert the I.C. into the tube. Tie a knot in the cable or a plastic 'tie-tie' on the 'inside' end of the cap - this is to relieve cable stress.

Go ahead and put the cover on and you're done!

TESTING and FINIS

The BASIC program listing, below, just checks to see if everything works okay. It is well commented. There are at least a few hundred applications you could write yourself. I may write one in the future myself and send it in to PSAN. Well, that's it for me, enjoy yourselves!!!

Reprinted from the
Puget Sound Atari News
July 1987

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0 REM LIGHT PEN TEST PROGRAM
5 REM By Thom Lawless, 'R' Atari Club
10 REM 100; GRAPHICS WITH A TEXT WINDOW
20 REM 110 LPEN VERTICAL POSITION
30 REM 120 LPEN HORIZONTAL
40 REM 130 ADJUSTED VERTICAL POS.
50 REM 140 - 160 ADJUST HORIZONTAL
60 REM 170 CHECK FOR 'KEY' ON
70 REM IF 'KEY ON THEN PRINT SCREEN
80 REM AND PEEK VALUES TO SCREEN
90 REM 180 START IT OVER AGAIN
100 GRAPHICS 7:SETCOLOR 4,8,8
110 Y=PEEK(565)
120 X=PEEK(564)
130 Y1=Y:Y1=Y1-16:IF Y1(0 THEN Y1=0
140 X1=X:IF X1(33 THEN X1=X1+227
150 X1=X1-67:IF X1(0 THEN X1=0
160 IF X1)159 THEN X1=159
170 IF PEEK(632)=14 THEN ? X,X1,Y,Y1
180 GOTO 110
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PARTS LIST

(1 ea.) Photo transistor FPT100A
(1 ea.) 2K ohm, 1/3 or 1/4 watt resistor *
(1 ea.) 74LS132 intergrated circut
(1 ea.) Single Pole, Single Throw, (SPST), pushbutton switch
(1 ea.) 9 pin 'D' type, female connector
(4 ft. or more) of 4 conductor wire flexible cable.
(13 inches) of #30 wire. (30 gauge, wirewrap wire). Cut into 3 pieces: two of 6 inches and one of 1 inch lengths.
(1 ea.) Large Marker Body. Approximate dimensions (length X diameter): 6 X 1/2 inch. *** Make sure it has a removable end cap! ***
(4 inches) of 'Shrink' tubing (optional).

* NOTE you might have to change the value of the 2K ohm to suit your monitor; it should however, never be less than 1K ohm.

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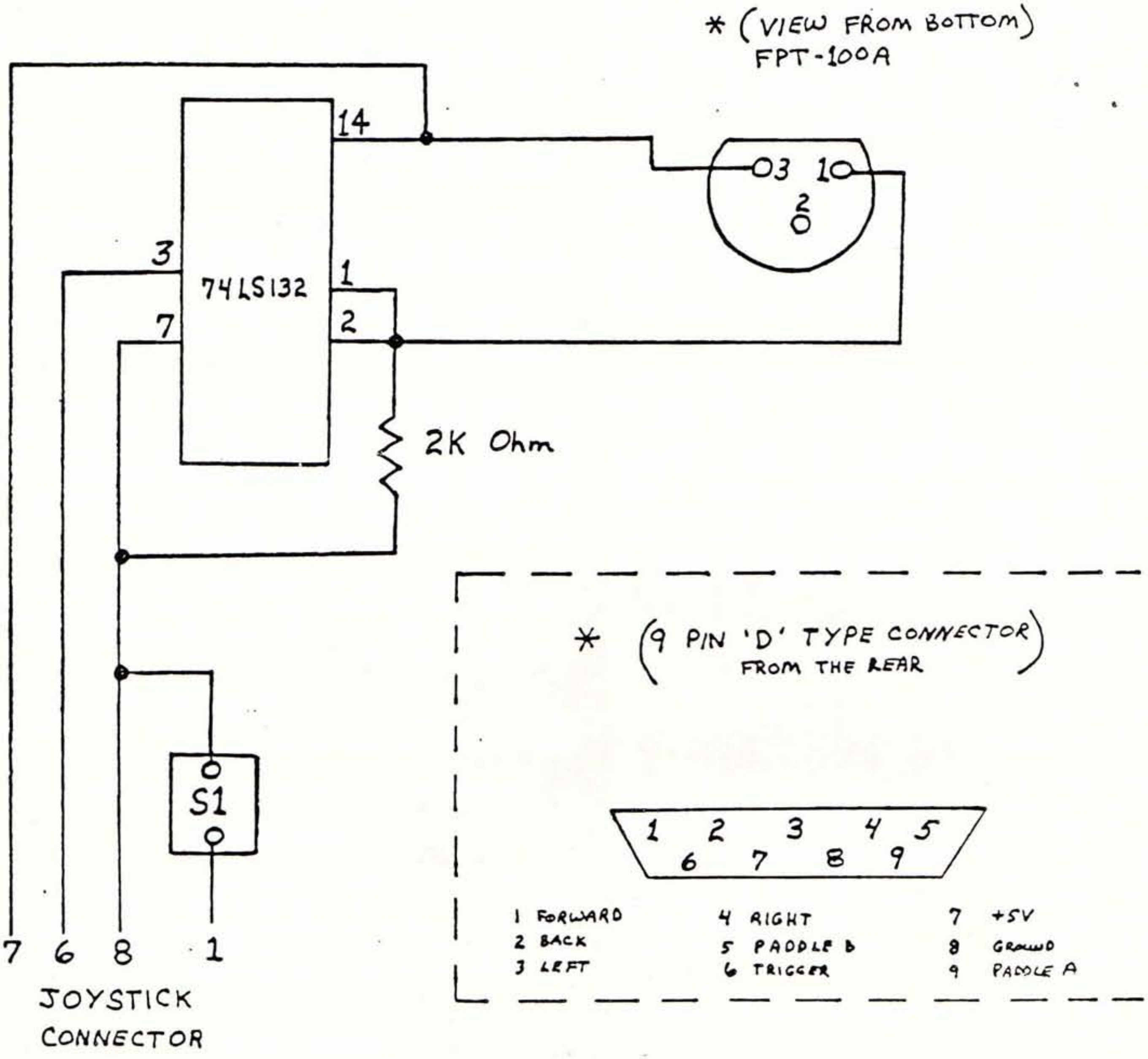

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- Any 10 or 15 inch printer capable of condensed and underlining print
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- Single and/or Double density disk drive

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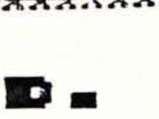

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